

Fitnessgram
Muscular Strength and Endurance Improvement Curriculum

- **What is Muscular Strength and Endurance?**

Muscular Strength is the amount of force a muscle can produce with a single maximum effort.

Muscular Endurance is the ability of a muscle or group of muscles to sustain repeated contractions against a resistance for an extended period of time.

- **What are the testing items?**

There are three (3) testing items that are designed to gauge your Muscular Strength and Endurance:

1. **Push-up Test-** used to assess upper body muscular endurance. Participants are asked to begin in a high-plank position (on hands and toes, flat body). From there, an audio cadence (“down”) guides them from the starting position, to lowering themselves until elbows are 90 degrees. Another audio cue (“up”) indicates to return to starting position. Participant’s score is the maximum amount of repetitions of the push-up completed to the cadence with proper form.
2. **Curl-up Test-** Similar to a sit-up, used to assess abdominal muscular endurance. Participants are asked to lie on a mat with knees bent approximately 140 degrees with a 4 ½ inch wide, flat band at their fingertips. Arms must be parallel to the trunk and hands must keep contact with the ground/band. On an audio cue (“up”), the participant must “sit up” sliding their hands across the band until they can touch the opposite end of the band. On the audio cue “down,” the participant must return to the starting position and the head must touch the mat. Participant’s score is the maximum amount of repetitions completed to the cadence with proper form to a maximum of 75.
3. **Trunk Lift-** This test is done by a student laying flat on his/her stomach, with the arms to the student’s side. The student then lifts their upper body off the ground, with a maximum of 12 inches, and holds it up long enough to be measured.

- **What are the benchmarks?**

Healthy Fitness Zone (HFZ) benchmarks are specific to age and gender and are listed in the charts below

Benchmarks- FEMALE Middle School ages

Age (yrs)	Push- up HFZ	Curl-up HFZ	Trunk Lift
11	7	15	9
12	7	18	9
13	7	18	9
14	7	18	9

Benchmarks- MALE Middle School ages

Age (yrs)	Push- up HFZ	Curl-up HFZ	Trunk Lift
11	8	15	9
12	10	18	9
13	12	21	9
14	14	24	9

- **Why are these an important Health-related Components of Fitness?**

Increasing your muscular strength and endurance is an important component to living a healthy lifestyle. Decreased body fat percentage, reduced risk of chronic disease, accident prevention and increased capability of daily tasks are just some of the major benefits for addressing this fitness component.

- **What can I do to improve my score?**

Improving your score on all of these assessments requires a regular (2-3 times per week) resistance training program. The program should address all the major muscles and actions of the body, and not neglecting any areas thereby creating strength imbalances. Each program should be performed in four week cycles. Below are some simple suggested resistance training plans designed to increase your muscular endurance and, in turn, your score on the three Fitnessgram assessments.

Work-out Plan #1 requires LITTLE OR NO EQUIPMENT and can be done almost anywhere.

Exercise	Modifications	Sets x Reps
Body Weight Squats	Use bench or chair to gauge depth	2 x 15
Side Plank Hold	bend knees and bridge knees to elbows	2 x 30 seconds each
Push-ups	Do push-ups on knees or with hands on elevated surface	2x15
Superman Hold		2 x 30 seconds each
Chair Dips	bring feet in closer to make dip easier	2x15
Sit-ups	use swiss ball or do crunches until you can do a full sit-up	2 x 15

Work-out Plan #2 requires the use of weights. Adjust the weight you perform each exercise with appropriately.

Exercise	Modifications	Sets x Reps
Lunges	hold dumbbell in each hand	2 x 15
Dumbbell Bench Press		2 x 15
Sit-ups	use swiss ball or do crunches until you can do a full sit-up	2 x 15
Romanian Dead-lift		2 x 15
Inclined Dumbbell Bench Press		2 x 15
Russian Med-ball Twist	feet can be on or off ground	2 x 15